PRINCIPLES OF PROGRAM DESIGN IN CAREER AND TECHNICAL EDUCATION

INTRODUCTION

The Vermont Department of Education's Career and Technical Education Program Design is based on three overarching questions:

1. What are the student outcomes?
2. What do students need to know and be able to do to achieve those outcomes?
3. How will you know (assess) that students have acquired this knowledge and skills?

PROGRAM OVERVIEW

- Program designs may be at the cluster, pathway, or specialization level.

> **Cluster** – one of Vermont's 16 broad career areas (e.g. Transportation, Distribution, & Logistics)
> **Pathway** – a sector within a cluster where occupations share a common set of skills (Equipment Maintenance)
> **Specialization** – a set of skills associated with a particular occupational field (Automotive Mechanics)

- The Scope of Program is determined by the identified student outcomes.

  Student outcomes: Describe in 2 to 3 sentences the specific career and academic outcomes.

  Brief Description: Describes the program in 4 or 5 sentences as you might find in a course catalog, showing correspondence to expected student outcomes.

  Workforce Information: Describes the program's:

  1. alignment with VT economic development priorities, including how the program aligns with long-term regional/ state employment demands;
  2. longevity and growth potential, including employment longevity and growth potential as it pertains to a program completer;
  3. multiple career opportunities and income potential, detailing avenues of exploration for the student during and after this program, and quoting specific statistics about earning potential for the career field, including essential steps to attain that potential after completion of the program.

  Curricular Connections: Describes how this program is a part of a larger curricular design, possibly including pre- and post-connections, both within secondary and beyond to postsecondary. All prerequisites are indicated in the curricular sequence. This section would include the student outcomes and exit points of the entire multi-year curriculum.

LEARNING STANDARDS

A program's learning standards include a minimum of one set of meta-cognitive (Meta) standards, one set of technical content standards, one set of academic skill standards, and one set

of 21st Century knowledge worker standards. The selection of learning standards is made in light of the program's intended student outcomes and its curriculum connections. The technical standards included for the designed program should be different than those included in any other secondary CTE program affiliated with this one (see "Curricular Connections"). Each learning standard identified for the program must be included in the array of program assessments. It is anticipated that separate assessments are NOT required for measuring achievement of each set of standards, and that one or more assessments can measure standards from more than one set.

- **Meta Standards** continuously influence curriculum, instruction and assessment decision-making, and by their nature demand teaching for transfer and higher order thinking skills. Meta-standards:
  - define the most essential overarching skills, attributes, and/or content in a given career cluster required for mastery performance of occupational tasks;
  - focus on areas that develop expertise with greatest endurance and value within the career cluster and continue development throughout the life of a career;
  - develop internal cognitive mechanisms for manipulating content knowledge and skills in a career cluster.

- **Technical Content Standards:**
  - define the core technical knowledge and skills;
  - are identified within 3 or 4 categories of content knowledge; and
  - Are limited to no more than 6 to 8 standards per category.

- **Academic Skill Standards**
  - define grade equivalent literacy, math, and embedded credit skills that are naturally occurring and critical in the occupational area and for the attainment of defined student outcomes; and
  - significantly address numerous standards for a content area as listed in the Vermont Framework of Standards.

- **21st Century Knowledge Worker Standards**
  - define a vital set of employability skills most critical to performance and success in a cluster occupational based on expectations of

ASSESSMENTS

Program assessments set the performance bar for each learning standard regarding "how good is good enough" in the occupational area and in relation to stated student outcomes. Program assessments must meet the following protocols:

1. Align with learning standards for the program as outlined in the program design document (includes meta standards, academic standards, technical/content standards, and 21st Century knowledge worker standards).
2. Contain multiple assessments and utilize multiple assessment techniques (written, oral, project, portfolio, task performance, scenario assessments) to maximize opportunity for individual students to demonstrate what they know and can do.
3. Assessments require a process to ensure test validity, reliability, and security
4. Assessments aligned to an industry certification are endorsed by and/or created in cooperation with experts in the field, including industry leaders for technical content

and academic teachers for academic content (math, science, language arts, arts, social studies)

5. Assessments provide for student transparency i.e. students know and understand what is being assessed, the evaluation criteria, and how to self assess and correct their own work.
6. Assessments accommodate students with disabilities.
7. Assessment are state approved.

CERTIFICATIONS

The program design must include identified certifications that students can earn in the program through proficient performance on state approved assessments. These credentials align with proficiencies essential to identified student outcomes. A variety of credentials could be included:

1. **Occupational Certifications** identify occupational proficiencies that have been met through assessments and might include:
    a. both broad and specialized skill composites that originate with the industry, are assessed by the industry, and are legally defensible credentials;
    b. broad skill composites within an industry that have an industry "stamp of approval" and are valued by the industry, but which are not legally defensible; and/ or
    c. small skill sets within an industry that may or may not be officially recognized by the industry, but are important building blocks of skill documentation.
2. **21st Century Knowledge Worker Credentials** certify workplace skills (such as Workkeys and NOCTI Employability)
3. **Academic Credentials** certify postsecondary readiness (such as Accuplacer, PSATs/SATs, or TABE)

PROGRAM ENDORSEMENTS

The designed program must be endorsed by representatives from appropriate industries, secondary institutions, postsecondary institutions, Department of Labor, economic development, the Workforce Development Council, and academic skills teachers. After securing necessary endorsements, the State Board of Education grants final approval of the program.

STUDENT and PROGRAM INCENTIVES

To ensure industry and postsecondary relevance, program designs must include specific agreements that add value for students and employers, signed by appropriate college, apprenticeship and employer representatives. Such incentives might include 1) Industry Certifications, 2) Scholarships, 3) College Credits/ Dual Enrollment, 4) Waiver of Postsecondary Entrance, 5) Advanced Standing in College or Training program, 6) Recommended Hours toward Registered Apprenticeship, 7) Possibilities for Competition Awards, 8) Employment Portfolios, 9) Advanced Placement and 10) Coop placements.